

The How and Why of Your High Performance HVAC System □

Perhaps the most frequently raised concern from home owners of high performance homes is:

How can I be saving energy, money, and wear and tear on my equipment if it seems as though my system is running a lot more than systems in other homes?

The neat thing about the answer to this question is that your high performance home not only is saving you energy, money, and equipment life; it's also delivering more comfort, health, and safety to boot. And you cannot split the pieces of your system up—it's an all-or-nothing performance package. Here is how and why it works for you:

And for those of you with a performance guarantee for your home, this guarantee is for energy bills and thermal comfort throughout every room in your home. This performance is very dependent on the periodic mixing that takes place every hour because of your **AirCycler™** system.

So, the next time your air handler kicks on and you hear the ring of a cash register, remember that it's the ring of savings not of needless spending, regardless of how often your system seems to run. And think about how even and consistent the comfort is throughout your home and throughout the year. Then you should go about the business of enjoying your home while the high performance HVAC system goes about its job of delivering that performance.



1

When you build a **tight thermal envelope**, you get to build in a smaller HVAC system, whether it be your furnace, you're A/C compressor, or your air handler (this is basically the fan motor that moves the heated or cooled air from the unit to the rest of your home). And a smaller system uses less energy than a larger system.

2

When your HVAC is sized correctly, it can be as much as **40% smaller** than the typically over-sized HVAC system. Smaller systems may run longer to achieve the same level of conditioning, but their total energy consumption is still lower. The equipment runs more efficiently and lasts longer if it is not short-cycling. It's in start-up that most of the wear and tear occurs and that requires a burst of energy.

3

Especially during mild weather, the AirCycler™ can make your air handler run more than air handlers in homes without active fresh air ventilation. And, since the AirCycler™ is pulling in outside air that may have to be heated or cooled, there is often additional energy associated with its use. On the other hand, during these same mild periods, the AirCycler™ may be pulling in outside air that **reduces** energy use because the outside air requires less conditioning (for example, pulling in cooler outside air at night that reduces air conditioning).

For a typical 1,500 ft² home¹, the energy cost for just the air handler's operation due to the AirCycler™ is somewhere between \$30 and \$50, depending on your climate. And when the AirCycler™'s operation is viewed as an integral part of your high performance home's operation, you end up with an **annual net savings** of anywhere from \$20 to \$50, compared to homes with typical air leakage and no active ventilation in the same climate.

4

Your home's overall performance—its energy costs, indoor air quality, thermal comfort, moisture control, combustion safety—is based on the HVAC system as a whole. You can't take the "V" out (**V stands for ventilating** in the Heating, Ventilating & Air Conditioning acronym). Unlike other homes, your high performance home has a dedicated and regimented system for introducing, filtering, and conditioning fresh air.